

REMARKS/ARGUMENTS

Reexamination of the captioned application is respectfully requested.

A. SUMMARY OF THIS AMENDMENT

By the current amendment, Applicant basically:

1. Amend claims 77, 81-84, 86-90, 93-95, 97-98, 102-104 and 106-107.
2. Cancel claims 92 and 100 without prejudice or disclaimer.
3. Add new claims 108-111.
4. Respectfully traverse all prior art rejections.
5. Advise the Examiner of the simultaneous filing of a Petition to Extend.

B. AMENDMENTS DO NOT CHANGE SCOPE

Amendments to claims 77, 81-84, 86-90, 93-95, 97-98, 102-104 and 106-107 are made merely to address informal issues. It is intended that the scope of these claims remain substantially the same.

C. PATENTABILITY OF CLAIMS

Claims 77-107 stand rejected under 35 USC § 102(a) as being anticipated by U.S. Publication 2008/0036651 to van Diggelen et al. (hereinafter Diggelen). Applicant respectfully traverses.

For a Section 102 rejection to be proper, the cited reference must teach or suggest each and every claimed element. *See M.P.E.P. 2131; M.P.E.P. 706.02.* Thus, if the cited reference fails to teach or suggest one or more elements, then the rejection is improper and must be withdrawn.

In one non-limiting aspect, the present disclosure is directed to determining a position of a GPS equipped mobile terminal. The mobile terminal is capable of measuring when it receives signals from a plurality of satellites – that is, the signal reception time is determined at the mobile terminal. Further, the mobile terminal is also capable of determining pseudoranges of the signals.

The mobile terminal's location is first determined by performing a relatively simple calculation with pseudoranges and signal reception time measured at the mobile terminal as inputs to the calculation. For example, the inputs can be used to solve simultaneous equations to determine the location. For the simple calculation, it is assumed that the pseudoranges and the signal reception time measured at the terminal is accurate. If they are accurate enough, the calculated location will be satisfactory.

However, the result of the simple calculation may not be satisfactory due to errors in either the signal reception time and/or the pseudoranges determined by the mobile terminal. If the quality of this first calculation is not satisfactory, then subsequent calculations are performed to correct the errors related to the signal reception time and/or the pseudoranges. For each

subsequent calculation, if the result is satisfactory, then the process stops and the location is determined. If not, then further subsequent calculations are performed. By performing simple calculations first and checking the quality, overall performance is improved since computationally intensive calculations can be often be avoided while still providing satisfactory results.

Independent claim 77 recites, in part, “calculating the location of the mobile terminal based on parameters representing the measured pseudoranges ... said calculating step uses a parameter for the time of signal reception measured at the mobile terminal.” As recited the signal reception time measured at the mobile terminal is used in calculating the location. This reflects the assumption that the mobile terminal’s timing measurements are accurate enough noted above.

In the Final Office Action, the Examiner is silent on this issue – the Examiner does not even allege that Diggelen teaches or suggests this feature. Applicant notes that in fact, Diggelen not only does not disclose this feature, but specifically teaches exactly the opposite. This is because Diggelen’s assumption about the GPS receiver is completely opposite, i.e., Diggelen assumes that the GPS receiver is incapable of providing accurate timing information. Diggelen specifically states “The apparatus above assumes that the GPS receiver 108 is not capable of reliably receiving the absolute time information and ephemeris data.” *Emphasis added; see paragraph [0040].*

Thus, Diggelen does not even consider using timing information that may be provided by the GPS receiver.

Diggelen describes that a set of pseudoranges together with absolute times of satellite positions at transmission times is sufficient to solve for position of the GPS receiver. *See paragraph [0011]*. But Diggelen also describes that factors such as propagation delays and satellite clock drift result in absolute timing errors and common mode errors. *See paragraphs [0014-0017]*. Diggelen particularly describes the common mode error as being particularly problematic. *See paragraphs [0017-0018]*. Diggelen states that there is a need to process GPS signals "without using absolute time". *See paragraph [0019]*.

Rather than using timing information that may be provided by the GPS receiver, Diggelen treats the absolute time as one of the unknown parameters to be solved in a simultaneous equation used to determine the receiver location. *See Figures 2-4 and 7*. Thus, it is logical that Diggelen is completely silent regarding whether the GPS receiver can determine when it receives the satellite signals. As noted, Diggelen completely disregards any timing information that may be gathered by the GPS receiver, which includes the signal reception time.

Thus, Diggelen does not teach or suggest the calculating step using the parameter for the time of signal reception measured at the mobile terminal. In

fact, Diggelen teaches specifically against using the signal reception time since it assumes that the timing information is unreliable.

As a natural consequence, Diggelen also does not teach or suggest using a transmission time offset parameter to correct for error in the signal reception time since Diggelen completely ignores the signal reception time in the first place.

In addition, Diggelen also does not teach or suggest the recalculating step using a transmission time offset parameter as an additional unknown parameter. As recited in claim 77, the time offset parameter is not used in the calculating, but is used in the recalculating step. That is, in the recalculating step, the time offset parameter is an additional unknown parameter.

In contrast, Diggelen always uses the same parameters when determining the GPS receiver location. Diggelen discloses that initially, a-priori time of reception and a-priori position are simply guessed and inputted to the simultaneous equation. *See Figure 2*. If the result does not converge to the required accuracy, the resulting a-priori time of reception and position of the previous calculation are used as the new guesses of the a-priori time of reception and position in the subsequent calculation. *See also paragraph 50*. At each iteration, the same parameters are used over and over.

Paragraphs [0083] and [0084] the Examiner relies upon merely indicates that instead of waiting for convergence of the absolute times, the timing errors

of the absolute times can be averaged for each iteration. However, this does not change the fact that during each iteration, the same parameters are used for calculation and no additional parameters are introduced. This is because the same simultaneous equations are used. Therefore, Diggelen does not teach or suggest the recalculating step using a transmission time offset parameter as an additional unknown parameter.

Due to the reasons stated above as well as others, independent claim 77 is distinguishable over Diggelen. Independent claims 89 and 98 recite similar features. For similar reasons, claims 89 and 98 are distinguishable over Diggelen. Claims 78-88, 90-91, 93-97, 99 and 101-107 are distinguishable over Diggelen by virtue of their dependencies from independent claims as well as on their own merit.

Applicant respectfully request the rejection of claims based on Diggelen be withdrawn.

D. NEW CLAIMS

Claims 108-111 are added. No new matter is presented. Applicant respectfully submits that the new claims are allowable. For example, independent claim recites, in part "receiving, at the mobile terminal, signals from a plurality of satellites; determining, at the mobile terminal, a signal reception time and a plurality of pseudoranges of the plurality of satellites; performing a first location calculation, at the mobile terminal or at a position

node of the cellular communication network, of calculating a first location of the mobile terminal based on the signal reception time and the plurality of pseudoranges." As demonstrated above, Diggelen does not teach or suggest the combination of these features.

Applicant respectfully request that the new claims be allowed.

E. MISCELLANEOUS

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly requested.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant respectfully petitions for a one (1) month extension of time for filing a reply in connection with the present application, and the required fee is attached hereto.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

AMENDMENT AFTER FINAL
U.S. Serial No. 10/589,752

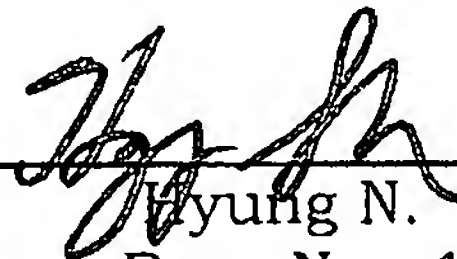
Atty. Docket No.: 4147-181
Art Unit No.: 3662

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____


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